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EXAMINER	
GLASS, ERICK DAVID	

ART UNIT	PAPER NUMBER
2837	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/816,092	MARKS ET AL.	
	Examiner	Art Unit	
	Erick Glass	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☒ Claim(s) 20 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed December 12, 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Palleggi and Blomquist combination backup dc power supply services to keep the system running in case of a main power failure as taught by Blomquist (column 3, lines 9-15). In the Cho et al. and Miura et al. combination a backup power supply that allows the DSP and gate drivers to continue to drive the motors in the event that there is a main power failure, as taught by Miura et al (column 2, lines 40-53). The combination of the Tisdale et al. and Cox-Smith et al. rejection is proper with the motivation to combine being to synchronize motor operations as taught by Cox-Smith (column 2, lines 38-43).

Claim Objections

Claims 7 and 8 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. (6,731,089) in view of Miura et al. (6,933,698).

With respect to claim 1, Cho et al. disclose a controller for controlling a plurality of motors in a fluid handling system (CAN is used in automobile systems, which handle fluid, e.g. fuel, air, etc.), comprising; a connector input/output port that communicates with at least one sensor in the fluid handling system to obtain sensor data (Fig. 1, encoder is the sensor and is input into 'B' at the 'Encoder Input'); at least one digital signal processor (DSP) (Fig. 1, #10) and gate driver (Fig. 1, J1) interface that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 1, #10 evaluates encoder signal and sends PWM control signal; see Fig. 4)); and at least one commutation module in communication with the at least one DSP and gate driver interface, wherein said at least one communication module controls at least one motor based on the control signal (Fig. 1 , #34); said at least one motor receiving AC power under normal conditions.

Cho et al. does not disclose the power supplies that operate as recited in claim 1.

Miura et al. discloses a CAN system that implements a local power supply that selectively powers the motors (Fig. 1, #15, note that "local" is a relative term), and the local power supply is a backup power supply is used to drive the motors (col. 2, lines 40-53). The motivation to use a backup power supply is to keep the system operating in the event of a power failure from the main power supply.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to implement into the CAN system of Cho et al., a backup power supply that allows the DSP and gate drivers to continue to drive the motors in the event that there is a main power failure, as taught by Miura et al.

With respect to claim 4, Cho et al. teaches wherein at least one of said plurality of motors shares one DSP (fig.1, 10) and gate driver (fig. 1, J1) interface and one motor commutation module.

Cho et al. does not disclose the power supplies that operate as recited in claim 7 and 8.

Miura et al. discloses a CAN system that implements a local power supply that selectively powers the motors (Fig. 1, #15, note that "local" is a relative term), and the local power supply is a backup power supply is used to drive the motors (col. 2, lines 40-53). The motivation to use a backup power supply is to keep the system operating in the event of a power failure from the main power supply.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to implement into the CAN system of Cho et al., a backup power supply that allows the DSP and gate drivers to continue to drive the motors

in the event that there is a main power failure, as taught by Miura et al.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palleggi et al. (5,638,387) in view of Blomquist (5,876,374).

With respect to claim 1, Palleggi et al disclose a controller for controlling a plurality of motors in a system, comprising: a connector port that communicates with at least one sensor to obtain sensor data (Fig. 8, input from encoders #s 30 and 31); at least one microprocessor, which is interpreted as a DSP, and gate driver interface that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 8, #s 53 and 54 evaluate data from encoders #s 30 and 31); and at least one commutation module in communication with at least one DSP and gate driver interface, wherein the at least one commutation module controls at least one motor based on the control signal (Fig. 8, #s 57 and 58); said at least one motor receiving AC power under normal conditions.

Palleggi et al. does not disclose the local power supply limitations of claim 1.

Blomquist discloses a motor control system that implements a local power supply that selectively powers the motors, and the local power supply is a backup power supply is used to drive the motors (col. 3, lines 9-15; note that 'local' is a relative term). The motivation to use a backup power supply is to keep the system operating in the event of a power failure from the main power supply.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to implement into the system of Palleggi et al., a backup power

supply as disclosed by Blomquist, thereby providing the advantage of allowing the motors to be operated upon main power failure, as taught by Blomquist.

With respect to claim 2-3, Palleggi et al. discloses each of the motors has a corresponding microprocessor (now DSP) and gate driver interface and a corresponding commutation module (Fig. 8, #16 has #53 and #57 and #17 has #54 and #58).

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. (5,619,111) in view of Blomquist (5,876,370).

With respect to claim 1, Katagiri et al. discloses a controller for controlling a plurality of motors in a system, comprising: a connector port that communicates with at least one sensor to obtain sensor data (Fig. 4, #23 receives data from e1- e6); at least one microcomputer, which is interpreted as the DSP, and gate driver interface that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 4, #s 57 in each of #s 6, 7, and 8); and at least one commutation module in communication with at least one microcomputer and gate driver interface, wherein the at least one commutation module controls at least one motor based on the control signal (Fig. 4, #s 52 and 56 in each of #s 6, 7, and 8).

Katagiri et al. does not disclose the local power supply as disclosed.

Blomquist discloses a motor control system that implements a local power supply that powers the motors, and the local power supply is a backup power supply is used to drive the motors (col. 3, lines 9-15; note that 'local" is a relative term). The motivation to use a backup power supply is to keep the system operating in the event of a power

failure from the main power supply. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to implement into the device of Katagiri et al. a backup power supply that is used by the DSPs and gate drivers to drive the motors, thereby providing the advantage of allowing the system to continue driving the motors in the event of a main power failure, as taught by Blomquist.

With respect to claims 2 and 3, Katagiri et al. discloses each microcomputer (now DSP) and gate driver interface has a corresponding commutation module (Fig. 4, #57 has #52 in each of #s 6, 7, and 8).

With respect to claims 5 and 6, Katagiri et al. discloses at least one of the plurality of motors is a binary-function, variable speed motor, and wherein the at least one commutation module controls said variable speed motor (col. 4, lines 23-25,servo motors are reversible (binary) and are variable speed).

Claims 9, 10,13, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tisdale et al. (6,553,770) in view of Cox-smith et al. (6,771,032).

With respect to claim 9, Tisdale et al. discloses an integrated fluid handling system, comprising: a skid mounting a plurality of motors (col. 1, lines 14-15); a plurality of fluid-handling devices associated with said plurality of motors (Fig. 3B; water pumps 114 and 116 driven by electric motors; col. 4, lines 48-52), and said plurality of fluid-handling devices handling at least a plurality of distinct fluids (water fig. 4, 28/oil column 6, lines 2-6) for delivery to a gas turbine (column 2, line 1).

Tisdale et al. does not disclose the motor control features of claim 9.

Cox-smith et al. discloses a plurality of sensors that generate sensor data corresponding to the operation of said plurality of devices (Fig. 5, LVDT is a position sensor, and the speed and current feedback loops imply the use of a current sensor); a multi-motor controller that controls said plurality of motors, the multi-motor controller having a connector input/output port that communicates with at least one sensor in the fluid handling system to obtain sensor data from said plurality of sensors (Fig. 1, #12 controls both motors and receives position and current feedback data); a plurality of digital signal processors (DSP) and gate driver interfaces that evaluate the sensor data from said plurality of sensors and generate a control signal based on the sensor data (Fig. 1, #12 is interpreted as the DSP, and it controls the gate drivers, #30 and 30'), and a plurality of commutation modules, each commutation module corresponding to one of said plurality of DSP and gate driver interfaces, wherein each commutation module controls at least one motor based on the control signal (Fig. 5; commutation module is #40 and #s 24, 26, and 28 based on the control signal from #34 and the speed profile). The motivation to control the motors using the control system disclosed by Cox-Smith et al. is to synchronize motor operation (col. 2, lines 38-43).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that the motors that control the pumps in Tisdale et al. could include the control features disclosed by Cox-Smith et al., thereby providing the advantage of synchronizing the motors, as taught by Cox-smith et al.

With respect to claim 10, Cox-Smith et al. discloses each motor having a corresponding DSP and gate driver interface and one commutation module (each motor, 8 and 10, have #s 24, 26, 28, and 30).

With respect to claim 13, Cox-Smith et al. at least one of the plurality of motors is a variable speed motor, and the commutation module controls at least one variable speed motor (Fig. 5, speed profile means the motors are variable speed and #s 40, 24, 26, and 28 control the motor at different speeds).

With respect to claim 18, Tisdale et al. discloses wherein a plurality of fluids includes at least oil (column 6, lines 2-6) and water (fig. 4, 28).

With respect to claim 19, Tisdale et al. discloses wherein a plurality of fluids includes fuel. The examiner takes official notice that the gas turbine receives gas to operate.

Claims 9, 11-13, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tisdale et al. (6,553,770) in view of Katagiri et al. (5,619,111).

With respect to claim 9, Tisdale et al. discloses an integrated fluid handling system, comprising: a skid mounting a plurality of motors (col. 1, lines 14-1 5); a plurality of fluid-handling devices associated with said plurality of motors (Fig. 3B; water pumps 114 and 116 driven by electric motors; col. 4, lines 48-52) and said plurality of fluid-handling devices handling at least a plurality of distinct fluids (water fig. 4, 28/oil column 6, lines 2-6) for delivery to a gas turbine (column 2, line 1).

Tisdale et al. does not disclose the motor control features of claim 9.

Katagiri et al disclose a system comprising: a plurality of motors (Fig. 4, M1-M6); a plurality of devices associated with the plurality of motors (Fig. 4, load attached to motors (not shown)); a plurality of sensors that generate data corresponding to the operation of the plurality of devices (Fig. 4, E1-E6); a multi-motor controller that controls the plurality of motors (Fig. 4, #9); the multi-motor controller having a connector that communicates with at least one sensor to obtain sensor data (Fig. 4, connector #23 receives sensor data e1-e6); a plurality of microcomputers, which are interpreted as DSPS, a plurality of gate driver interfaces that evaluate the sensor data and generate a control signal based on the sensor data (Fig. 4, #s 57 in #s 6, 7, and 8, respectively); and a plurality of commutation modules, each commutation module corresponding to one of the plurality of DSP and gate drivers interfaces, and where each commutation module controls at least one motor based on the control signal (Fig. 4, #s 51 and 55 in #s 6, 7, and 8, respectively). The motivation to configure the motor control system as disclosed by Katagiri et al. is to improve control reliability (col. 2, lines 32-37).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention that servomotors can control the pumps in Tisdale et al., and thus, providing the advantage of improving motor control reliability, as taught by Katagiri et al.

With respect to claim 11, Katagiri et al. discloses at least one of the plurality of motors shares one DSP and gate driver interface and one motor commutation module (Fig. 4, MI and M2 share #57).

With respect to claims 12 and 13, Katagiri et al. discloses at least one of the plurality of motors is a binary-function, variable speed motor, and wherein the at least one commutation module controls said variable speed motor (col. 4, lines 23-25; servo motors are reversible (binary) and are variable speed).

With respect to claim 15, Katagiri et al. discloses the system further comprises a system controller that controls operation of the plurality of motors according to an instruction from the multi-motor controller (Fig. 4, external setting device #26 communicates via #72 to #9: col. 4, lines 28-3 1).

With respect to claim 16, Katagiri et al. discloses the system controller is connected to the multi-motor controller via a connector selected from the group consisting of a serial connector or an Ethernet connector (Fig. 7, #72 is a serial connector that connects #26 to #9).

With respect to claim 17, Katagiri et al. discloses the system comprises a plurality of multi-motor controllers that are connected to the system controller (Fig. 7, shows a plurality of #9s ["stacked" boxes]).

With respect to claim 18, Tisdale et al. discloses wherein a plurality of fluids includes at least oil (column 6, lines 2-6) and water (fig. 4, 28).

With respect to claim 19, Tisdale et al. discloses wherein a plurality of fluids includes fuel. The examiner takes official notice that the gas turbine receives gas to operate.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tisdale et al. and Katagiri et al. as applied to claim 9 above, and further in view of Blomquist

(5,876,370).

Tisdale et al. and Katagiri et al. do not disclose the limitations of claim 14.

Blomquist discloses a motor control system that implements a local power supply that powers the motors, and the local power supply is a backup power supply is used to drive the motors (col. 3, lines 9-15; note that "local" is a relative term). The motivation to use a backup power supply is to keep the system operating in the event of a power failure from the main power supply.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to implement into the device of Tisdale et al. and Katagiri et al. a backup power supply that is used by the DSPS and gate drivers to drive the motors, thereby providing the advantage of allowing the system to continue driving the motors in the event of a main power failure, as taught by Blomquist.

Allowable Subject Matter

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Glass whose telephone number is 571-272-8395. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached at 571-272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RINA DUDA
PRIMARY EXAMINER

EG